STRENGTH OF TIMBER BEAMS.

SIR,—I have made a model of a truss beam to a 1-inch scale, its bearing is 25 inches, the flitches are 27 inches long, and 1¼ by ⅜ths its contents are about 2¼ parts, it carries a weight of 16lbs. with very little flexibility. Now, I should be glad to know (and by what rule) how much a beam of 25 feet bearing will carry whose flitches are 15 inches by 6¼, which is near the size of my model according to scale. If any of your talented readers will solve this question, it will oblige, yours respectfully.

A CONSTANT SUBSCRIBER.

## Miscellanea.

PROPERTY-TAX AND WINDOWS.—Lord Duncan, the member for the city of Bath, has procured, by order of the House of Commons, a return shewing the total number of houses assessed to the property tax in the year 1844, in respect of certain streets, squares, and courts, in Westminster and Marylebone; also a similar return of the amount of window duty paid by the several houses assessed in each of the above classes, distinguishing the amount paid for each class, &c. It is hence ascertained that the total number of houses assessed in 1844 amounted in Regent-street to 302—of which 21 were under 150*l.* 65 under 200*l.*, 115 under 250*l.*, 49 under 300*l.*, 26 under 400*l.* 8 under 500*l.*, 5 under 1,000*l.*, and 3 under 2,000*l.*; in St. James's-square, 28—of which 4 were under 150*l.*, 1 under 200*l.*, 3 under 750*l.*, 12 under 1,000*l.*, and 8 under 2,000*l.*; in Berkeley-square, 45—of which 1 was under 100*l.*, 3 under 150*l.*, 3 under 200*l.*, 7 under 250*l.*, 6 under 300*l.*, 5 under 400*l.*, 7 under 500*l.*, 11 under 750*l.*, 1 under 1,000*l.*, and 1 under 2,000*l.*; in Oxford-street, 503—of which 160 were under 150*l.*, 117 under 200*l.*, and 2 under 2,000*l.*; in Grosvenor-square, 45—none of which were under 300*l.*; in Piccadilly, 174—of which 8 were between 750*l.* and 1,000*l.*, 6 under 2,000*l.* and 3 above 2,000*l.*; in Peter-street, Westminster, to 89; in Berwick-street, Soho, to 98; in Chapel-street, Westminster, to 1; in Little Stanhope-street, to 13; in Dufour's-place, St. James's, to 10; in Cross-street, St. James's, to 14; in Broad-street to 49; in Poland-street to 63; and in Lancashire-court, Westminster, to 14; all the houses in the above nine localities being lowly assessed in comparison with the others. The amount of window duty paid by the several houses was—in Regent-street, 2,060*l.*; in St. James's-square, 669*l.*; in Berkeley-square, 712*l.*; in Oxford-street, 2,310*l.*; in Grosvenor-square, 933*l.*; in Piccadilly, 1,791*l.*; in Peter-street, 114*l.*; in Berwick-street, Soho, 453*l.*; in Chapel court, Westminster, 3*s.* 6*d.*; in Little Stanhope-street, St. George's, 62*l.* 13*s.*; in Dufour's-place, 78*l.* 7*s.* 6*d*; in Cross-street, 77*l.* 13*s.* 6*d.*; in Broad-street, 332*l.*; in Poland-street, 415*l.*; and in Lancashire-court, 22*l.*

SOCIETY OF ARTS.—May 7th, Mr. G. Moore, V.P., in the chair. Mr. J. Scott Russell described an upright drill, the invention of Mr. J. McDowall; the novelty and advantage of which consisted in the application of the power employed being in the direction of the axis of the drill, instead of at right angles, as in the ordinary drill. Mr. Boulter described his improved compensation pendulum-spring, whereby he is enabled to regulate the pendulum without altering the adjustment, and *vice versâ*. The pendulum is attached to a rod (of white deal) by means of a pivot passing through two small steel plates let into the rod. The secretary read a paper by Mr. Dickson on the manufacture of his pressed glass mosaics, applicable alike for pavements, mural decorations, and furniture, several specimens of which were laid on the table. The mosaics may be produced of any colour. They may also be modelled into any required shape, while the glass is in a fused state, by means of a double-action screw press. In order to prevent the surface of the mosaics being bloated and uneven, it is necessary that the pressure should be continued on a sufficient time so that the glass may harden before being removed from the mould. Dr. Jarvis, of Connecticut, U.S., explained to the meeting his "Surgical Adjuster," the objects of which are to reduce dislocations, to adjust all fractures, and preserve the fractured extremities in apposition during the process of reunion.

WESTMINSTER IMPROVEMENTS.—A public meeting of the inhabitants of Westminster was held last Saturday, at the Mechanics' Institution, Great Smith-street, for the purpose of having submitted to them the report of the committee appointed on the 7th of February, to consider the best means of carrying out the projected improvements in that district. The Hon. Captain Rous, M.P. presided. It appeared that the committee had had an interview with Sir Robert Peel, who approved of their proceedings, and recommended them to communicate with the Commissioners of Woods and Forests, which they accordingly did. The Earl of Lincoln informed the committee that he was so pledged to Mr. Rigby Wason's line and plan of improvement, that he could not even examine other plans shewn, much less entertain them. We gave a short time since (see page 147, *ante*), the names of those gentlemen who had sent in plans. It was stated at the meeting, by one of the committee, that on the question being put to each of those gentlemen, as to his being prepared with sufficient means to carry out his design, if approved of, not one of them could answer in the affirmative, with the exception of Mr. Abraham, whose plan is the one adopted by Mr. Wason. We are indebted to the excellent secretary to the Westminster Improvement Committee (Mr. W. H. J. Traice), for a copy of the report laid before the meeting, and shall refer to it next week.

THE NAIL TRADE IN STIRLINGSHIRE.—This branch of trade has long been in a very depressed state, chiefly arising from the use of machine-made nails, and also from a spirit of competition among the employers. The average earnings of the nail-makers in this quarter, for some years past, have not exceeded 7*s.* a week; for though in some few instances 8*s.*, 10*s.*, or even 12*s.*, have been realised, yet these sums were only got by extra labour, or perhaps a better paid kind of work. About six months ago the workmen obtained a penny additional for making 1000 nails; and after some agitation on the part of the workmen, several of the employers have this week advanced another 3*d.* on the same quantity. This will have the effect of raising the nail-maker's weekly earnings to about 8*s.* 6*d.* or 9*s.*, or from 20 to 30 per cent. on their wages, which, though still a small pittance, must be productive of a little more comfort to this long-depressed body of men.—*Scotch Paper.*

THE KING'S ROAD, READING.—Relative to the late competition at Reading, we are informed that, after thoroughly considering the whole of the designs submitted to the adjudicators, the proprietor has decided to adopt one of the designs which received a premium both from the suitability of the design to the situation and aspect of the land, and the wants of the town of Reading. The land on the north side of the King's-road is intended to be laid out in one square of ample dimensions, in the area of which an ornamental terrace 380 feet long is preparing, and other arrangements with respect to walks and borders similar to Hyde Park-gardens, London. That on the south side will also form a terrace, with a diversified shrubbery in front. The style is to be restricted to the Italian, and care taken to preserve the character of the whole design. Our readers will find in our advertising columns a notice of the land as now offered to the public.

SMOKE NUISANCE.—It appears by the reports made from Woolwich and Portsmouth dockyards, that after a lengthened trial of nearly two years, it has been determined to adopt Godson's patent smoke-consuming apparatus in the Government yards, in consequence of its satisfactory performance. This invention combines the two principles of coking the coal and introducing heated air into the furnace, by either of which methods, scientific men are agreed that a very large proportion of the smoke of furnaces may be consumed; and by the joint operation of the two, it is to be expected that the most perfect combustion of the smoke will be obtained.—*Morning Paper.*

THE SCHOOLMASTER ABROAD.—The Archdeacon of Middlesex at a recent visitation stated, that the National Society had raised above 197,000*l.* between the 5th of July, 1843, and Christmas last, a period of only sixteen months. That no less than 845 schools had been built or enlarged, and accommodation provided for 108,937 scholars.

HOT-AIR PIPES USED BY THE ROMANS.—It is stated, in a letter from Treves, that a curious and interesting discovery has been made, in the course of the excavations among the foundations of the ancient Roman basilica of that place—about to be restored, in its primitive form, as a Lutheran Church. Beneath the mosaic pavement of its principal hall, which rests on brick buttresses, has been found a complete system of metal pipes, of a large calibre, which have obviously, it is said, been used for warming that apartment by means of steam or heated air—thus proving that a method of heating believed to have been of recent invention was known and practised in the days of the Romans.—Not far from the Webersbach gate of the same city, and about four feet beneath the surface of the soil, has been likewise discovered an extensive and magnificent pavement in mosaic, also resting on brick pillars and which appears to have belonged to some stately edifice. It is divided into large compartments—of which eleven are uninjured, and represent mythological subjects—such as combats of gladiators, and military and bacchanal trophies.—*Athenæum.*

BAZAAR IN COVENT-GARDEN THEATRE.—An extraordinary effect has been produced in Covent Garden Theatre by the scene-painter and the carpenter, and will well repay a visit when the admission money is a shilling. The whole house, including the stage, to the back wall, is formed into a vast hall, with open timber roof, clustered columns, and pointed arches, elaborately adorned with panelling and colours. Seen from the upper boxes, which form the orchestral gallery, the effect of the lengthened perspective is very striking. Without reference to the Anti-Corn Law League, for whose purposes the bazaar is opened, we are bound to say the whole arrangements exhibit considerable taste, and that many of the articles exhibited, iron work especially, are of great excellence, and will serve to stimulate manufacturers, and so benefit the public.

EFFECT OF RAILWAYS ON THE WEATHER.—It has been suggested that the state of the electricity of the atmosphere, on which depend most of the meteorological changes, may be greatly altered by having iron conductors traversing the country in all directions. Thus, iron transmits electricity easily from one end of the country to another; but not being insulated, it only opens a communication of easier transmission in all the directions of the iron rails. It has been said that not more than half the quantity of rain has fallen during the past year. The electricity of the clouds would be puzzled were the surface of the earth covered with a non electric, as glass; and why should not a complete conduction in certain lines give passage to much electricity, which in the ordinary character of the usual surface of the ground would be more naturally and more beneficially distributed?

DESTRUCTION OF PIFF'S ELM.—The celebrated Piff's Elm, near the parish of Uckington, was some time since sold by auction by order of the Dean and Chapter of Westminster. It was bought by Mr. Crook, of Hasfield, near the Haw-bridge, for the sum of 12*l.* About a fortnight ago, the work of demolition commenced, and was completed at 20 minutes to 4 o'clock on Wednesday last. The time occupied was nine days—six in stocking it, erecting the scaffolding round it, and lopping off the limbs, and three in felling the trunk, which was about eight or nine feet in diameter. Nine sawyers were employed in cutting the trunk through the centre, and afterwards in sawing it across at the root. A great many bets were made by gentlemen as to the soundness of the tree; the timber was found to be perfect.—*Cheltenham Free Press.*

ELECTION OF A SURVEYOR FOR THE PARISH OF ST. JAMES'S.—A notice has been issued by the Middlesex magistrates, signed "Heaton Ellis, clerk of the peace," to the effect that the court will proceed on Thursday, the 29th instant, to the election of a surveyor for the parish of St. James's, in the liberty of Westminster, in the room of Mr. James Gray Mayhew, deceased.

YARMOUTH SUSPENSION BRIDGE.—We have some notes in type relative to the recent failure of this construction. So many conjectory opinions, however, are before the public, and so little information that is satisfactory, that we defer publishing them.

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